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PATENT & TRADEMARK OFFICE

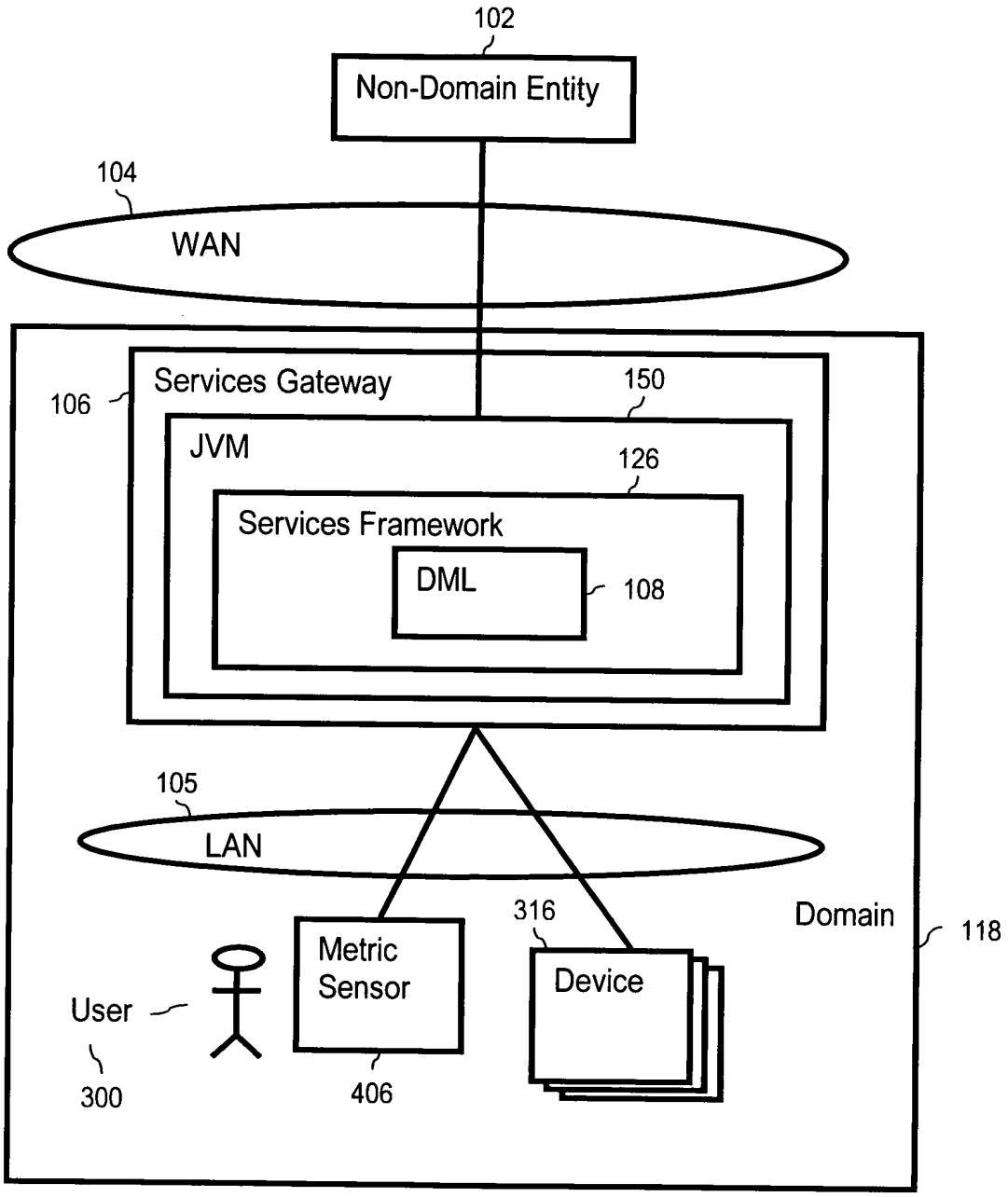

FIG. 1

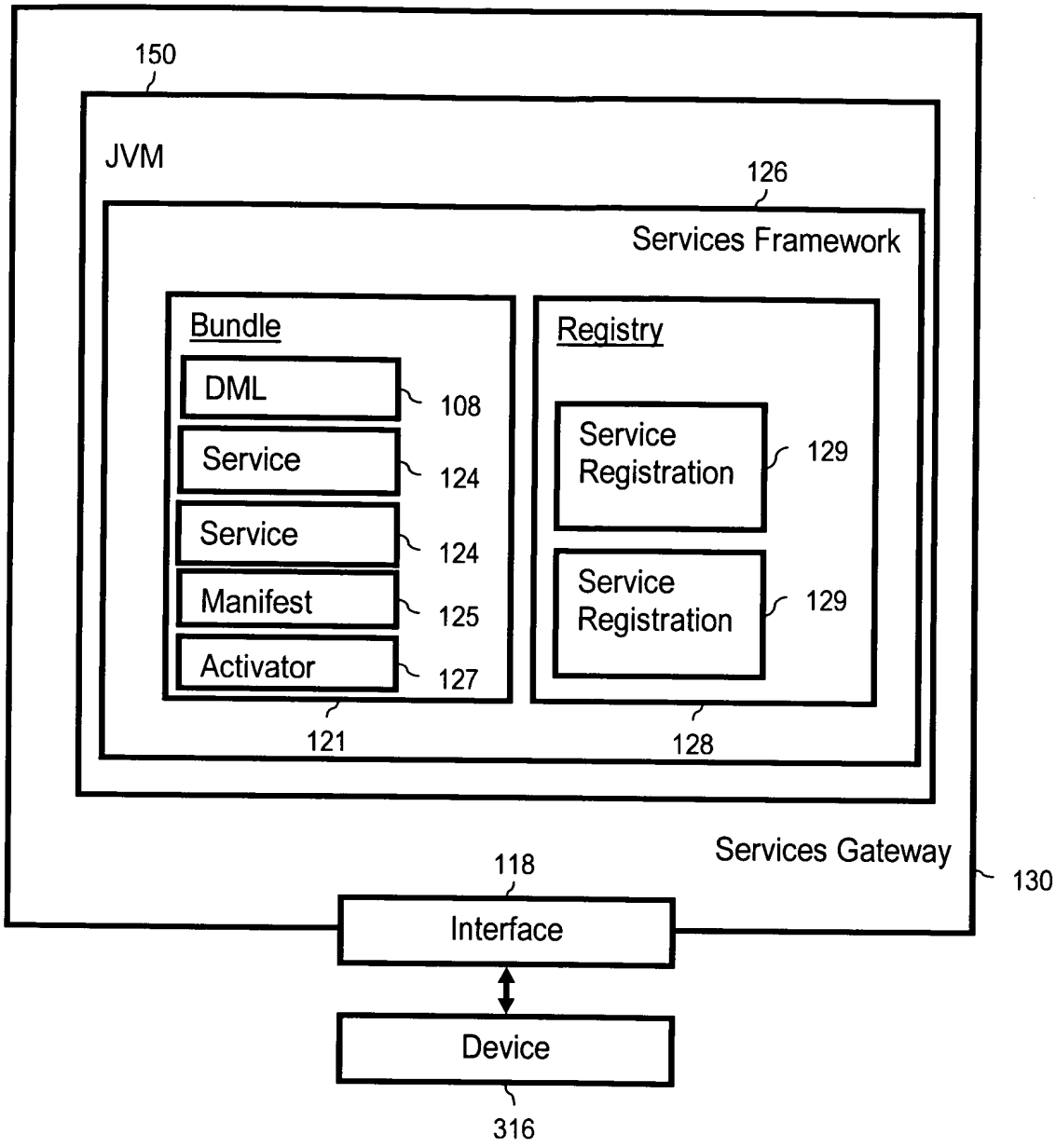
150
JVM
126
Services Framework
Bundle
DML
108
Service
124
Service
124
Manifest
125
Activator
127
121
Registry
Service Registration
129
Service Registration
129
128
Services Gateway
130
118
Interface
Device
316

FIG. 2

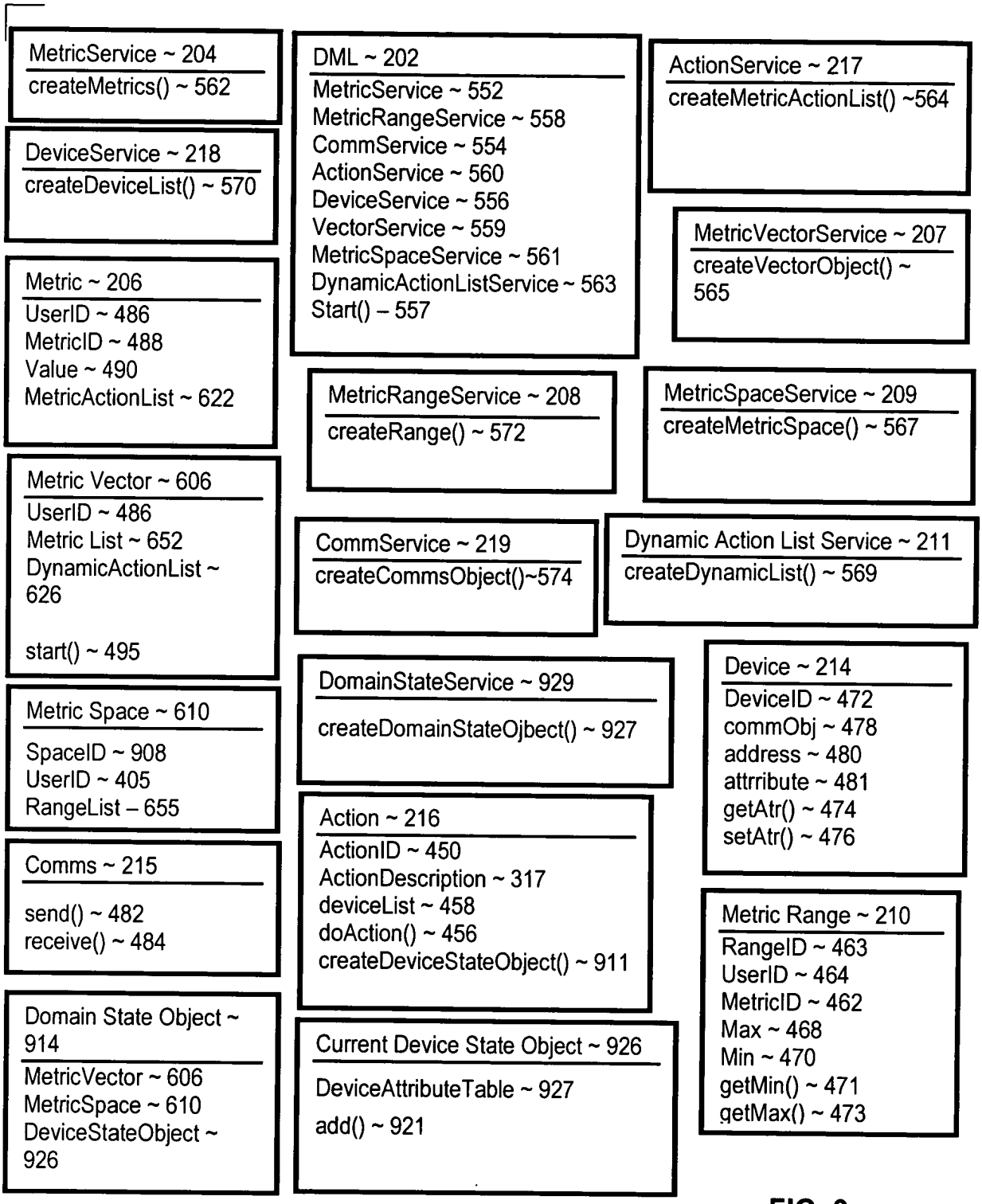
MetricService ~ 204
createMetrics() ~ 562
DML ~ 202
MetricService ~ 552
MetricRangeService ~ 558
CommService ~ 554
ActionService ~ 560
DeviceService ~ 556
VectorService ~ 559
MetricSpaceService ~ 561
DynamicActionListService ~ 563
Start() – 557
ActionService ~ 217
createMetricActionList() ~564
DeviceService ~ 218
createDeviceList() ~ 570
MetricVectorService ~ 207
createVectorObject() ~ 565
Metric ~ 206
UserID ~ 486
MetricID ~ 488
Value ~ 490
MetricActionList ~ 622
MetricRangeService ~ 208
createRange() ~ 572
MetricSpaceService ~ 209
createMetricSpace() ~ 567
Metric Vector ~ 606
UserID ~ 486
Metric List ~ 652
DynamicActionList ~ 626
start() ~ 495
CommService ~ 219
createCommsObject()~574
Dynamic Action List Service ~ 211
createDynamicList() ~ 569
Metric Space ~ 610
SpaceID ~ 908
UserID ~ 405
RangeList – 655
DomainStateService ~ 929
createDomainStateOjbect() ~ 927
Device ~ 214
DeviceID ~ 472
commObj ~ 478
address ~ 480
attrribute ~ 481
getAtr() ~ 474
setAtr() ~ 476
Comms ~ 215
send() ~ 482
receive() ~ 484
Action ~ 216
ActionID ~ 450
ActionDescription ~ 317
deviceList ~ 458
doAction() ~ 456
createDeviceStateObject() ~ 911
Metric Range ~ 210
RangeID ~ 463
UserID ~ 464
MetricID ~ 462
Max ~ 468
Min ~ 470
getMin() ~ 471
getMax() ~ 473
Domain State Object ~ 914
MetricVector ~ 606
MetricSpace ~ 610
DeviceStateObject ~ 926
Current Device State Object ~ 926
DeviceAttributeTable ~ 927
add() ~ 921

FIG. 3

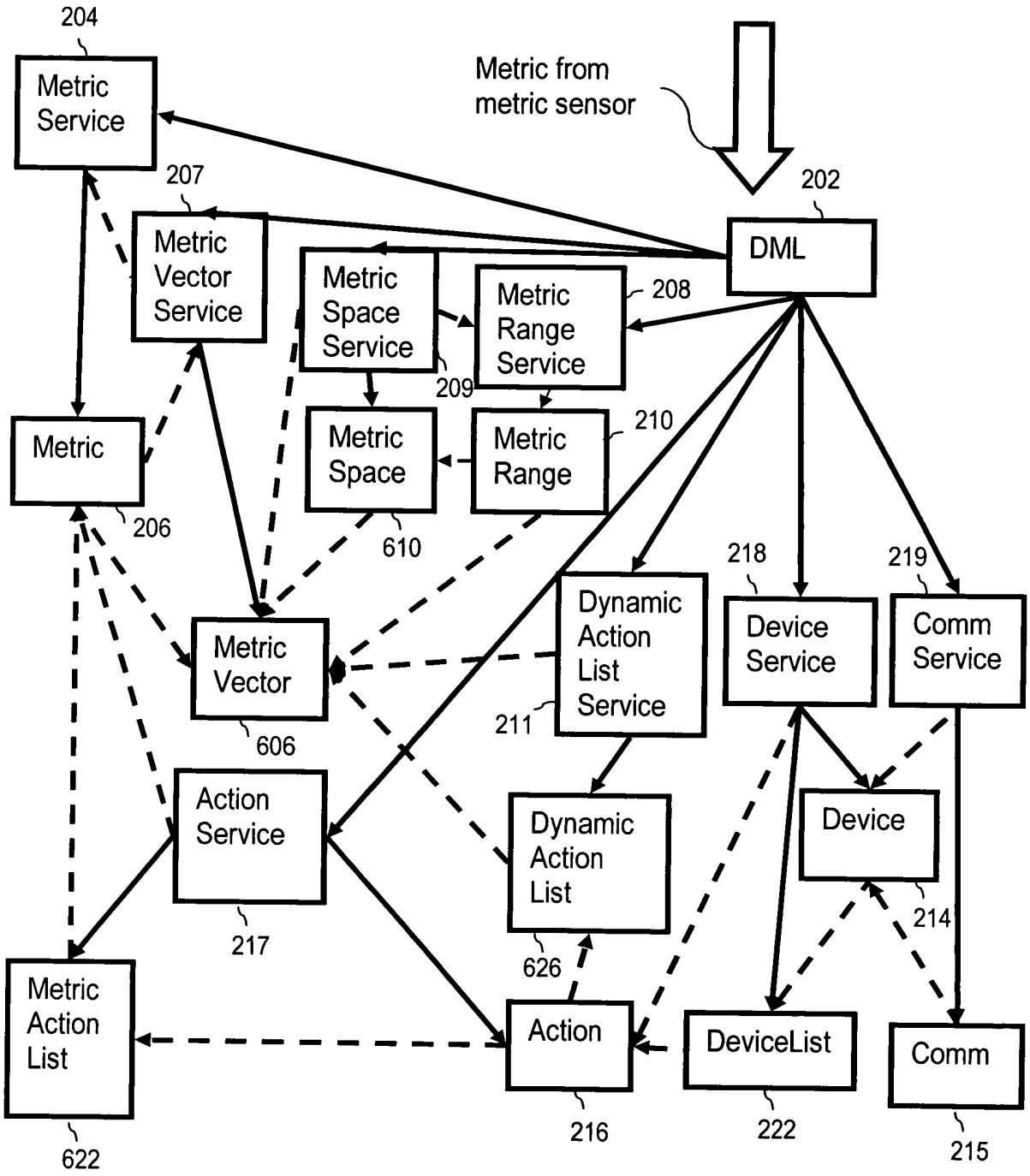
204
Metric Service
Metric from metric sensor
202
207
Metric Vector Service
DML
Metric Space Service
Metric Range Service
208
209
Metric
Metric Space
Metric Range
210
206
610
218
219
Dynamic Action List Service
Device Service
Comm Service
Metric Vector
606
211
Action Service
Dynamic Action List
Device
214
217
626
Metric Action List
Action
DeviceList
Comm
622
216
222
215

FIG. 4

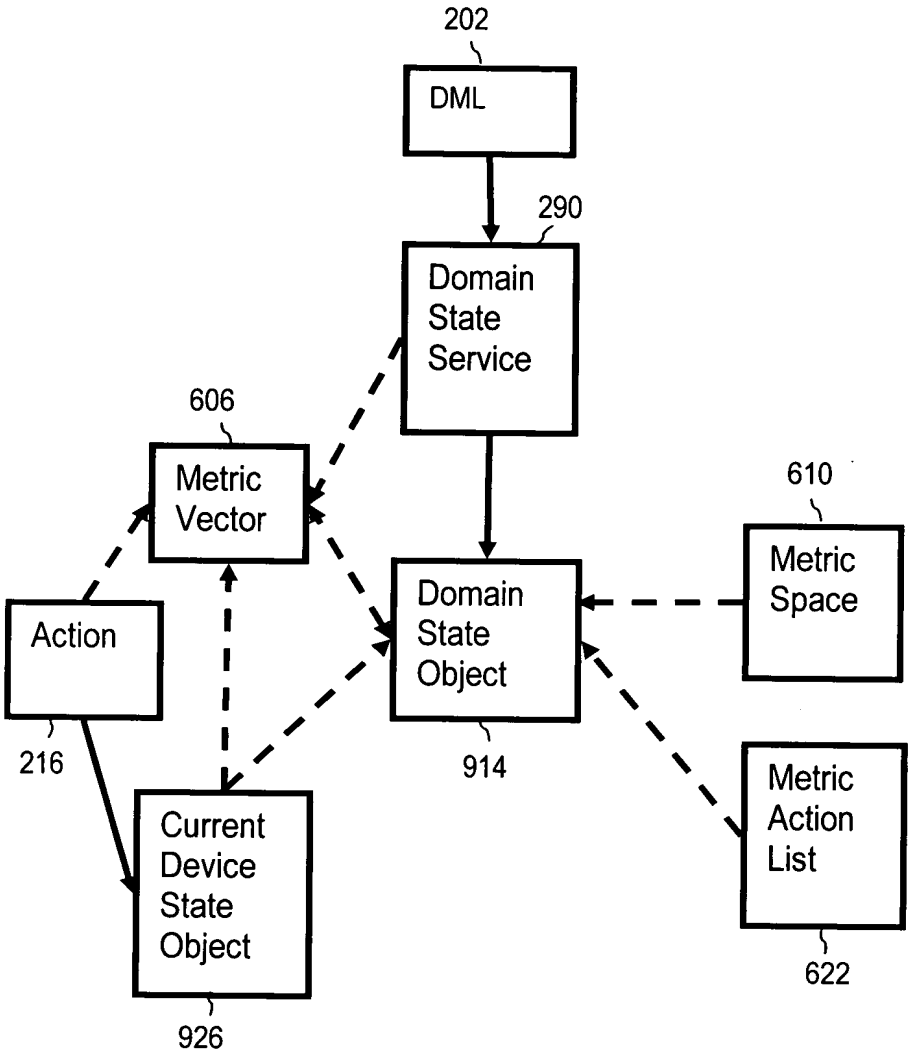
202
DML
290
Domain State Service
606
Metric Vector
610
Metric Space
Action
Domain State Object
216
914
Metric Action List
Current Device State Object
622
926

FIG. 5

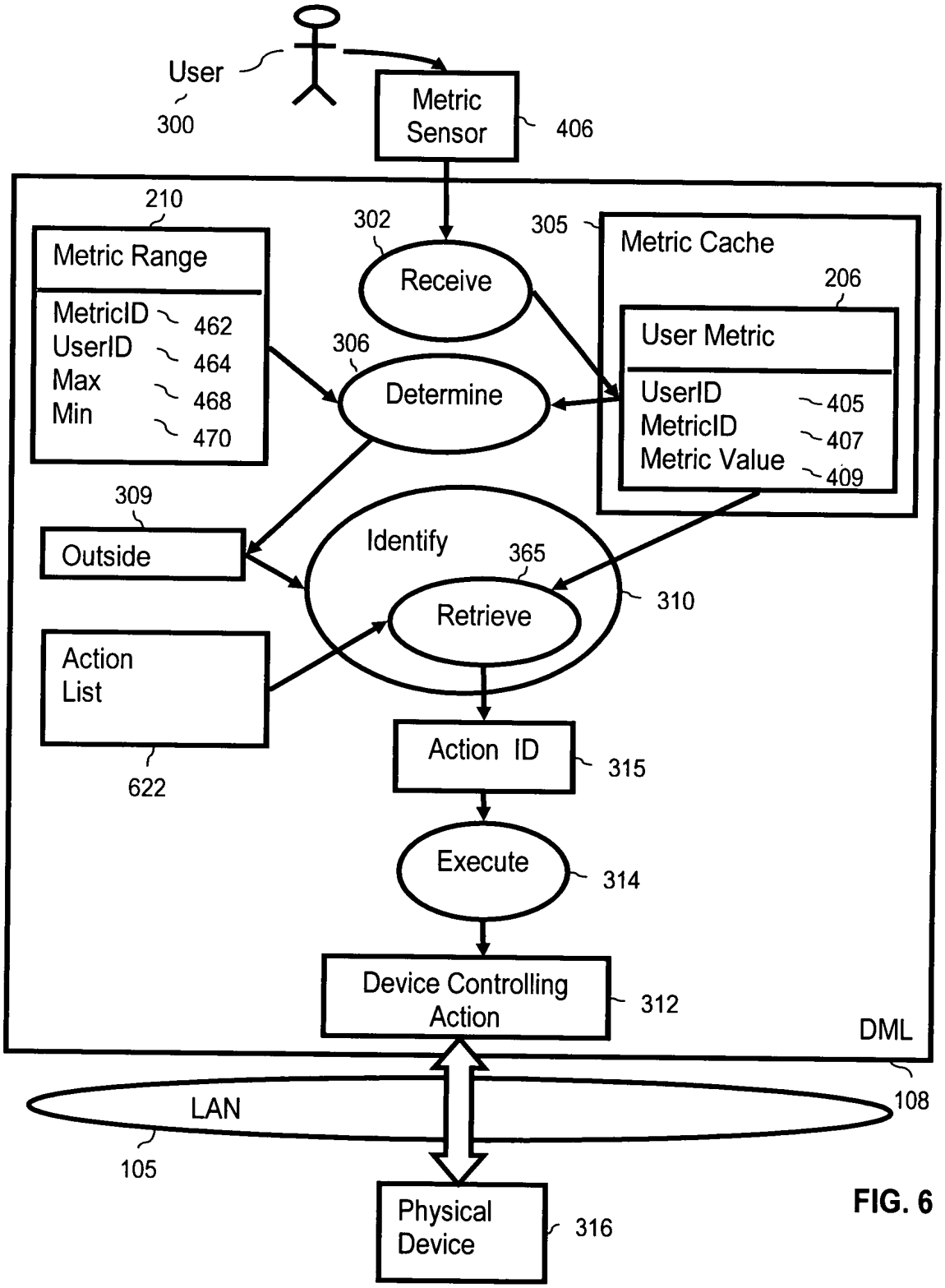
User
300
Metric Sensor
406
210
Metric Range
MetricID
462
UserID
464
Max
468
Min
470
302
Receive
305
Metric Cache
206
User Metric
UserID
405
MetricID
407
Metric Value
409
306
Determine
309
Outside
Identify
365
Retrieve
310
Action List
622
Action ID
315
Execute
314
Device Controlling Action
312
DML
108
LAN
105
Physical Device
316

FIG. 6

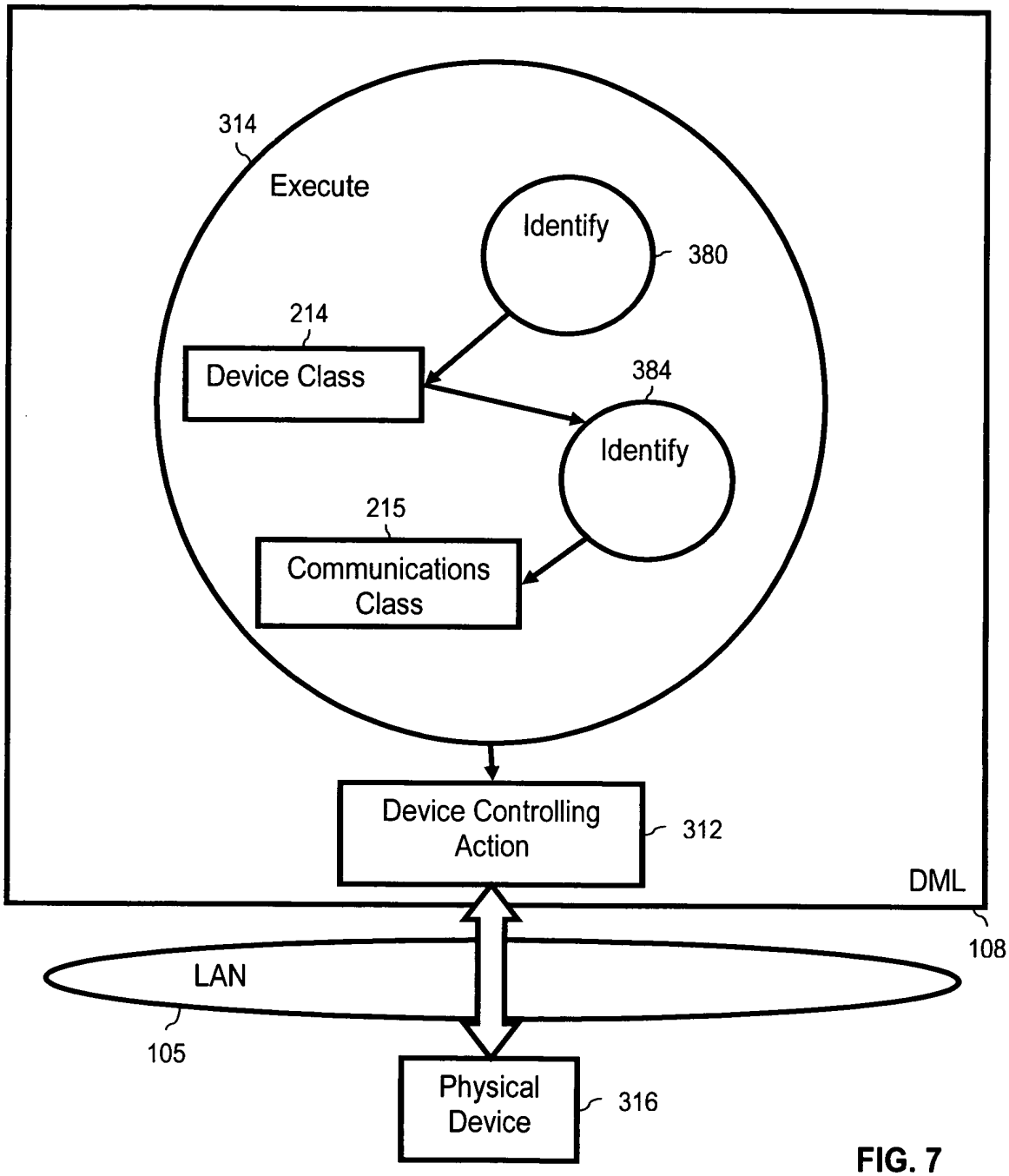
314
Execute
Identify
380
214
Device Class
384
Identify
215
Communications Class
Device Controlling Action
312
DML
108
LAN
105
Physical Device
316

FIG. 7

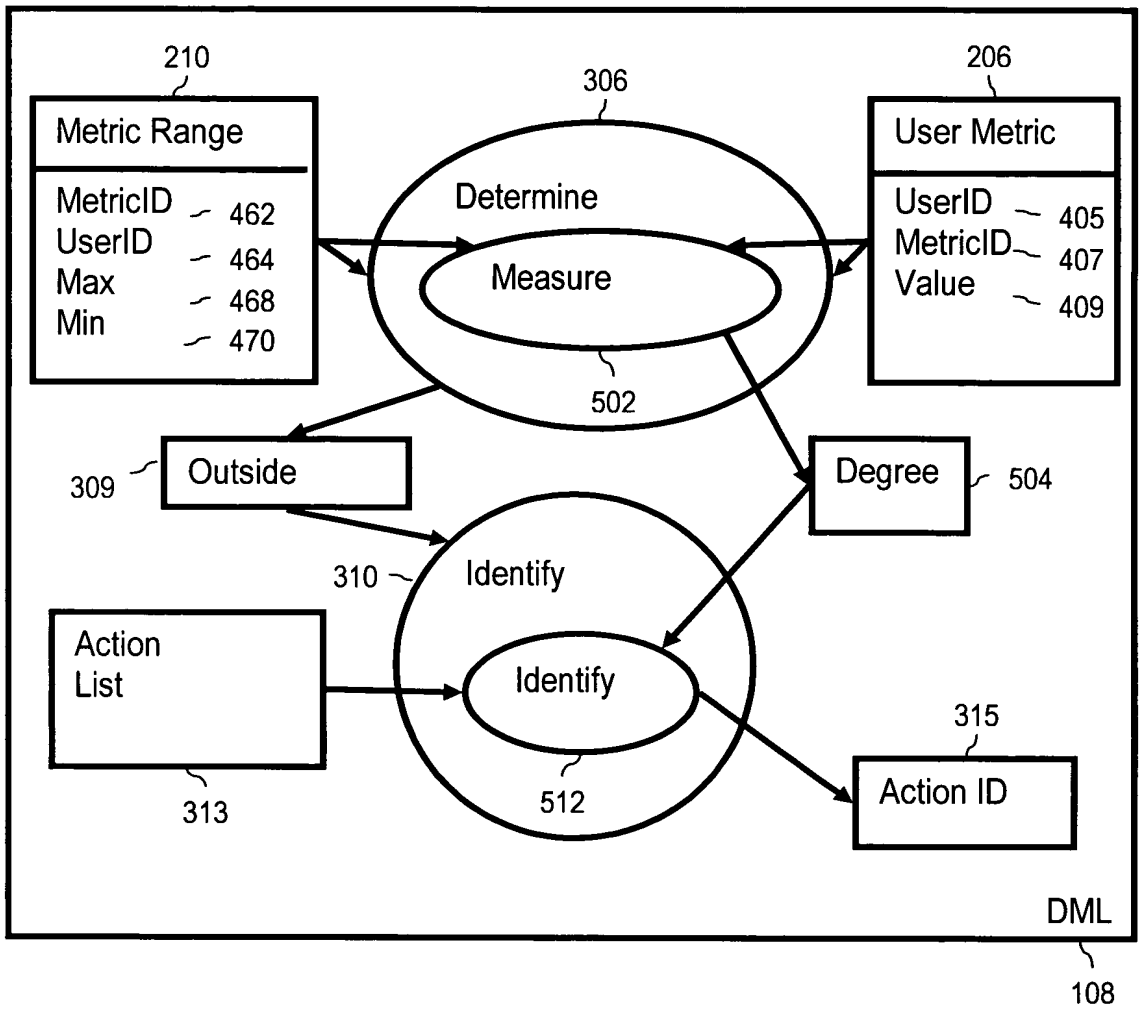
210
Metric Range
MetricID
UserID
Max
Min
462
464
468
470
306
Determine
Measure
502
206
User Metric
UserID
MetricID
Value
405
407
409
309
Outside
Degree
504
310
Identify
Action
List
Identify
313
512
315
Action ID
DML
108

FIG. 8

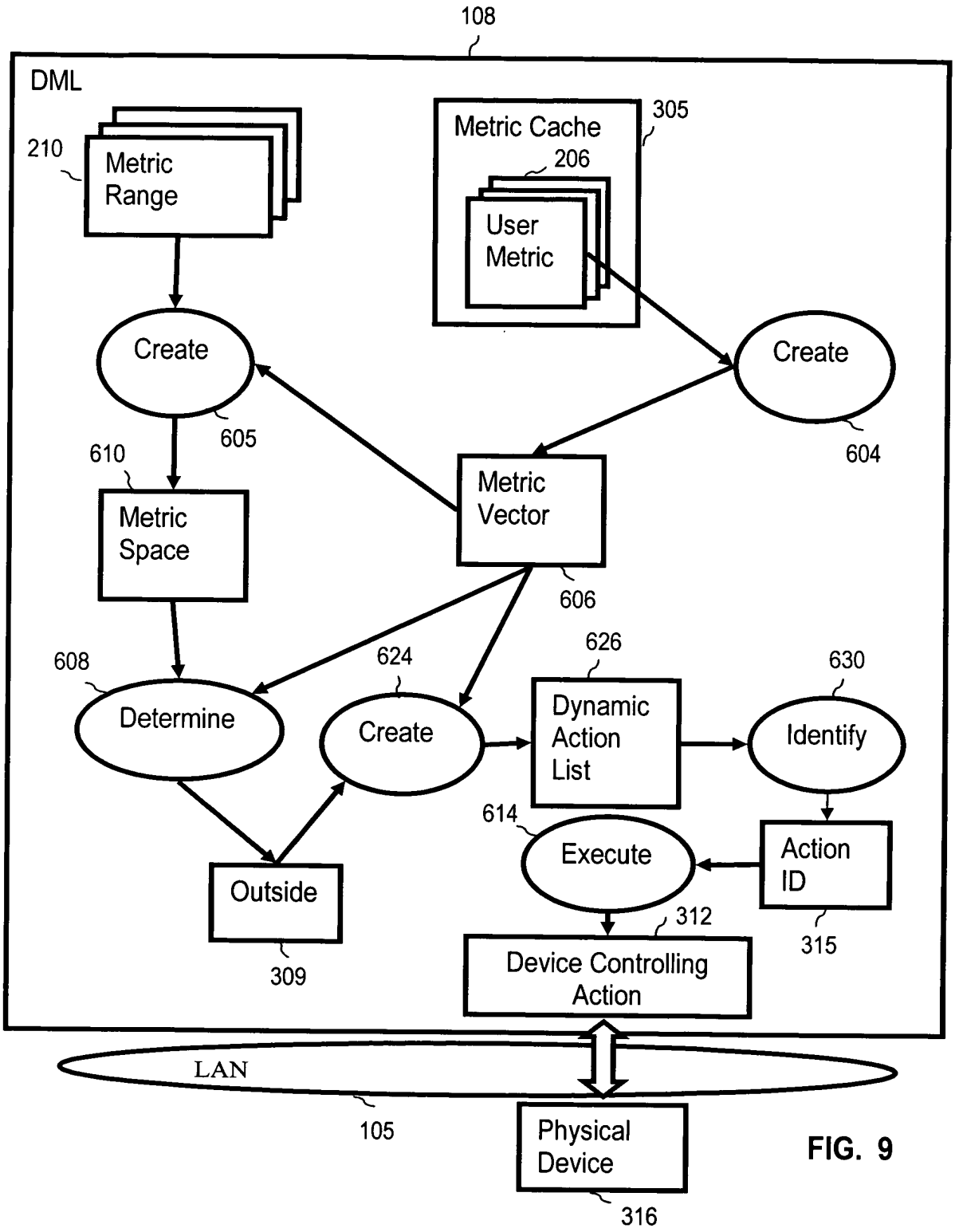
108
DML
210
Metric Range
Metric Cache
305
206
User Metric
Create
605
Create
604
610
Metric Space
Metric Vector
606
608
Determine
624
Create
626
Dynamic Action List
630
Identify
614
Execute
Action ID
315
312
Outside
309
Device Controlling Action
LAN
105
Physical Device
316

FIG. 9

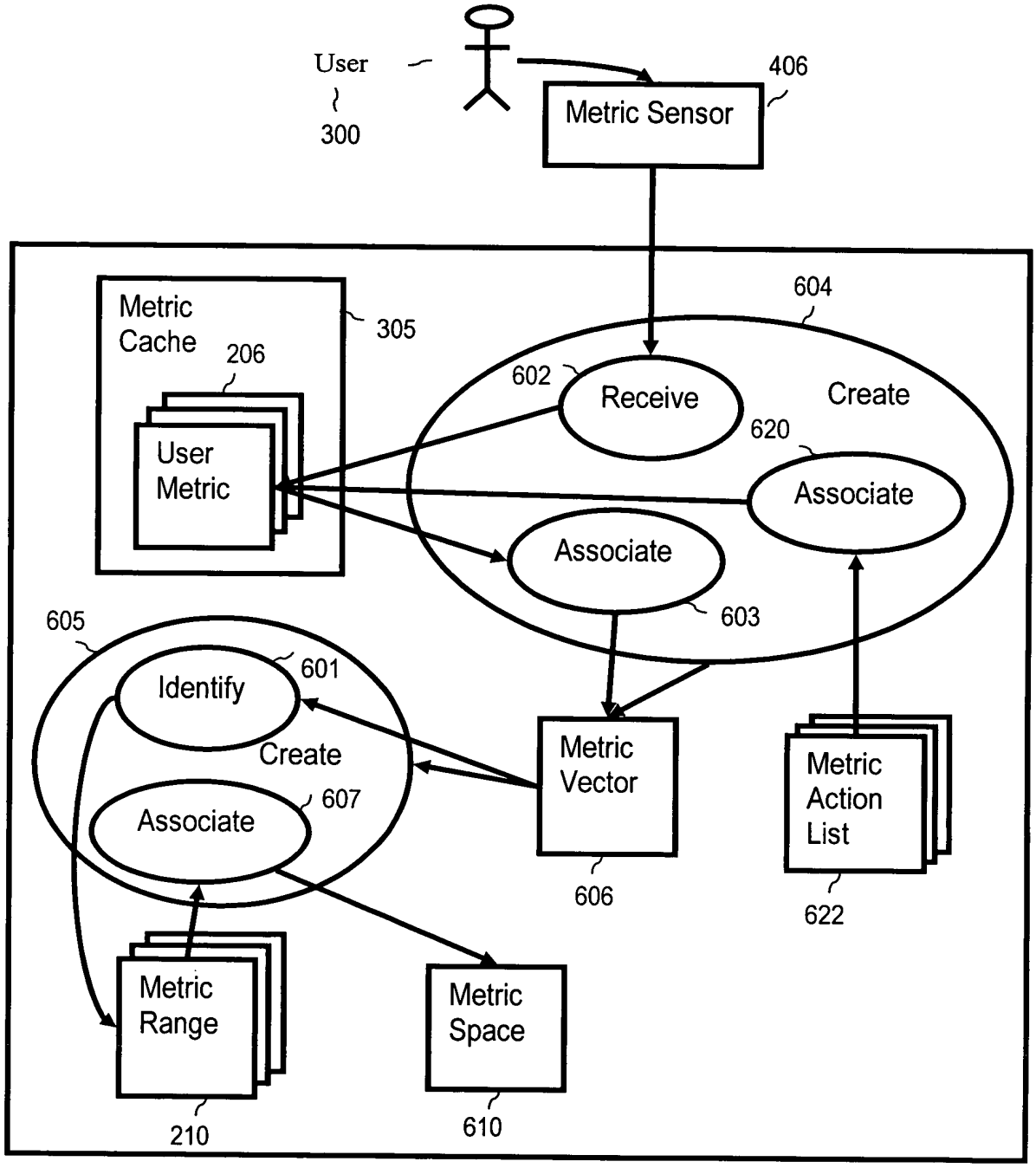
User
300
406
Metric Sensor
Metric Cache
206
305
User Metric
604
602
Receive
Create
620
Associate
Associate
603
605
Identify
601
Create
607
Associate
Metric Vector
606
Metric Action List
622
Metric Range
210
Metric Space
610

FIG. 10

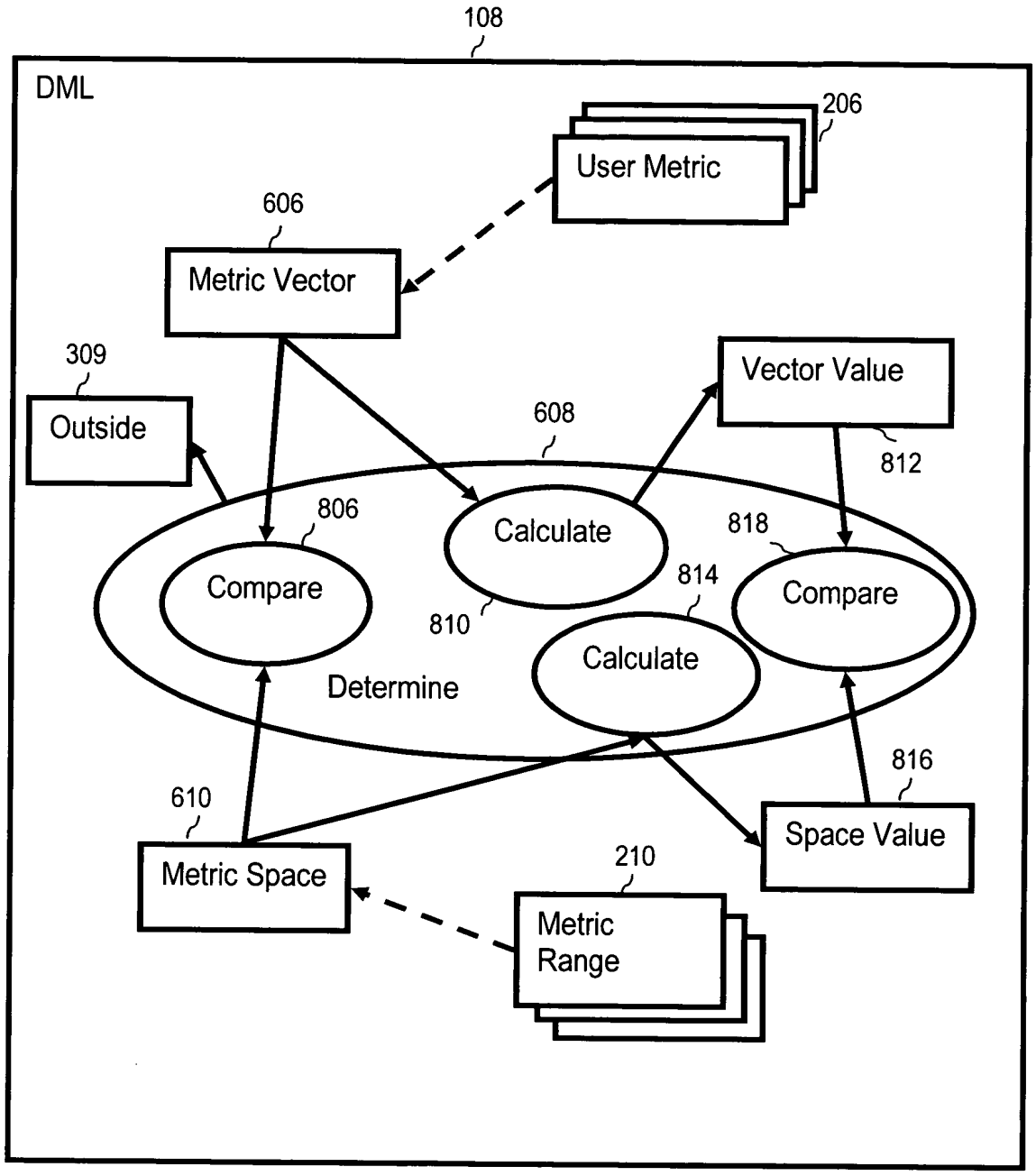
108
DML
206
User Metric
606
Metric Vector
309
Outside
608
Vector Value
812
806
Compare
Calculate
818
814
Compare
810
Calculate
Determine
816
610
Space Value
Metric Space
210
Metric
Range

FIG. 11

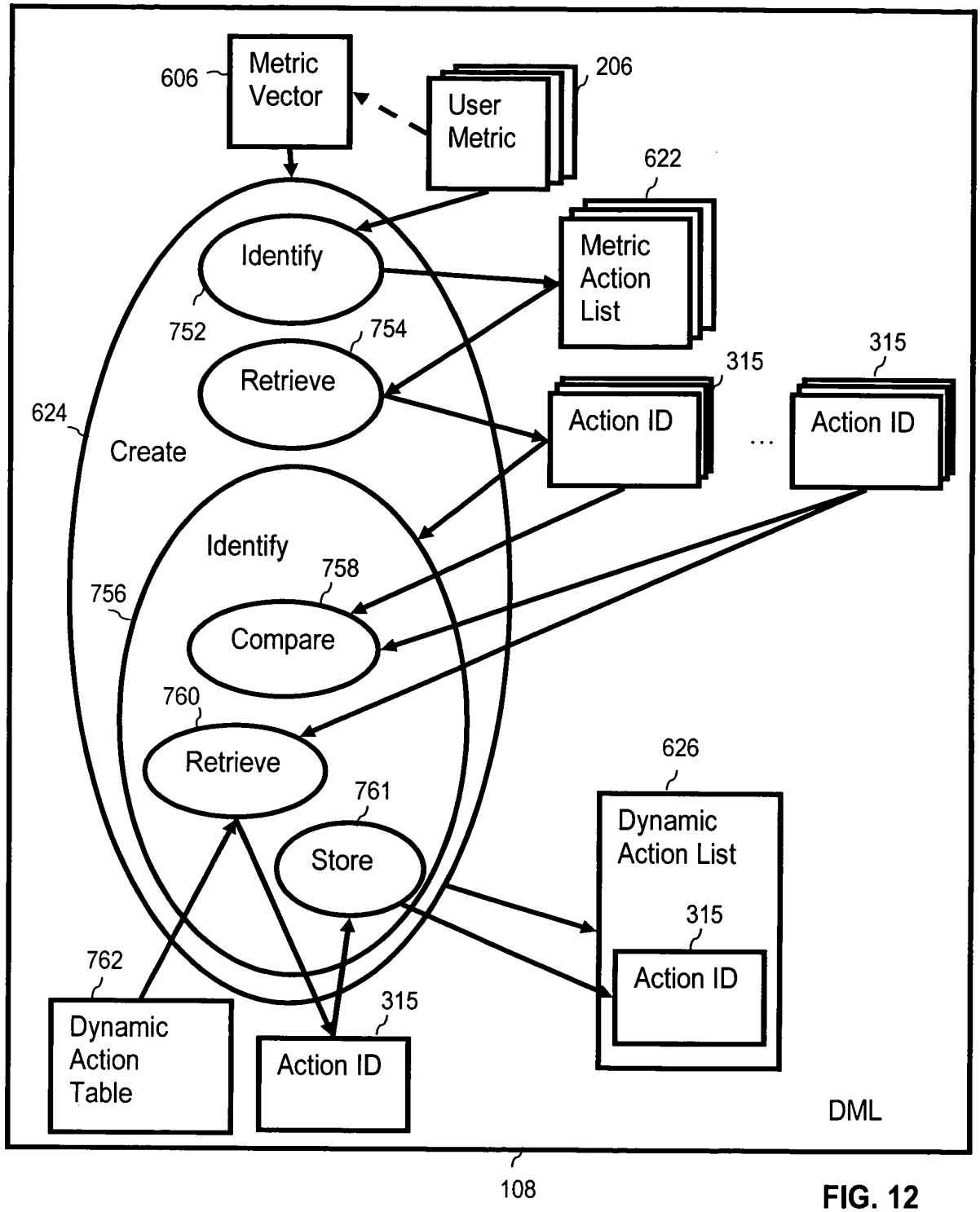
606
Metric Vector
206
User Metric
622
Metric Action List
Identify
752
754
Retrieve
624
Create
315
Action ID
...
315
Action ID
Identify
758
756
Compare
760
Retrieve
626
761
Store
Dynamic Action List
315
Action ID
762
Dynamic Action Table
315
Action ID
DML
108

FIG. 12

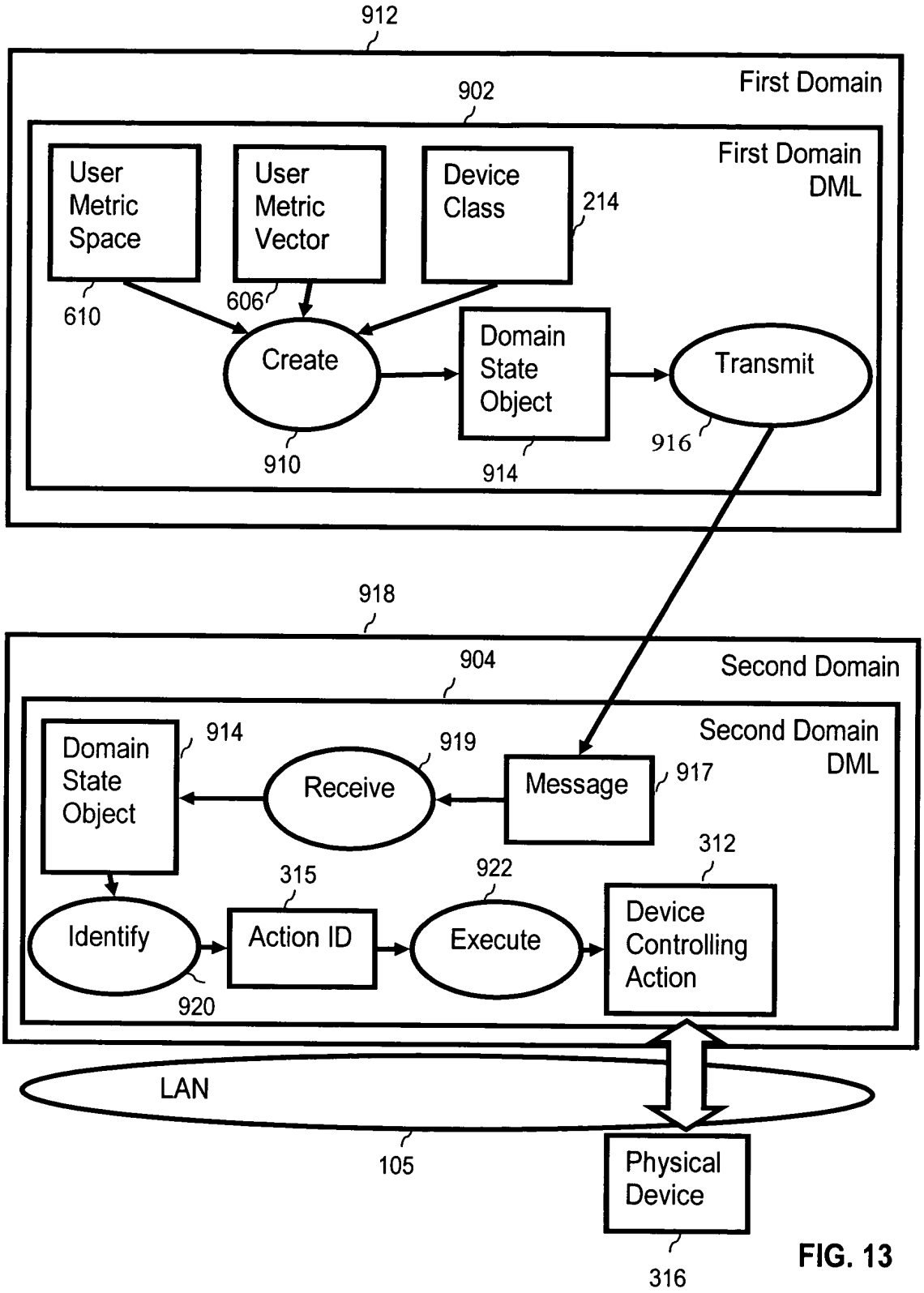
912
First Domain
902
First Domain DML
User Metric Space
User Metric Vector
Device Class
214
610
606
Create
Domain State Object
Transmit
910
914
916
918
Second Domain
904
Second Domain DML
Domain State Object
914
Receive
919
Message
917
312
315
922
Identify
Action ID
Execute
Device Controlling Action
920
LAN
105
Physical Device
316

FIG. 13

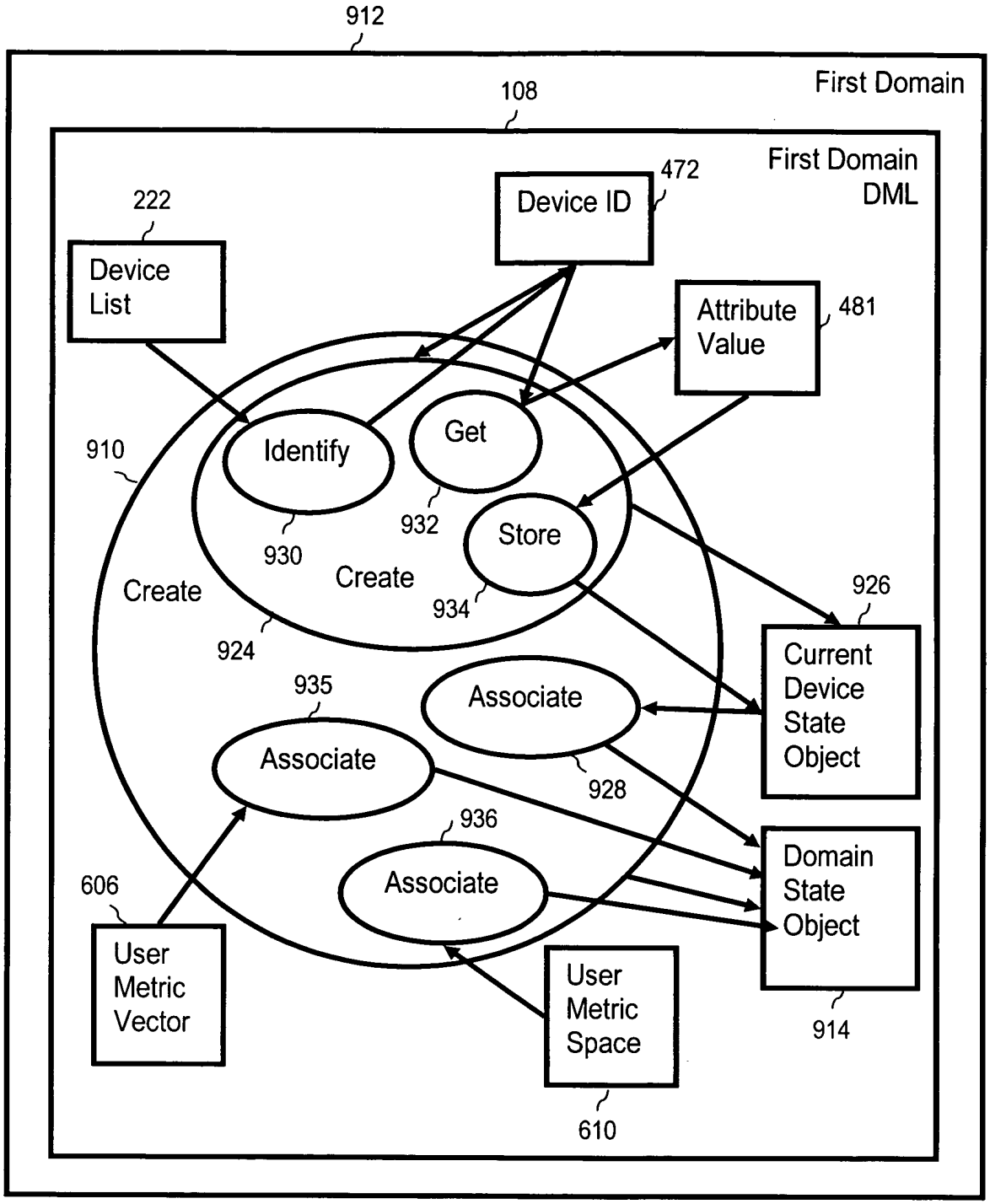
912
First Domain
108
First Domain DML
472
Device ID
222
Device List
Attribute Value
481
910
Identify
Get
932
930
Store
Create
Create
934
924
926
Current Device State Object
935
Associate
Associate
928
936
Associate
Domain State Object
606
User Metric Vector
User Metric Space
914
610

FIG. 14

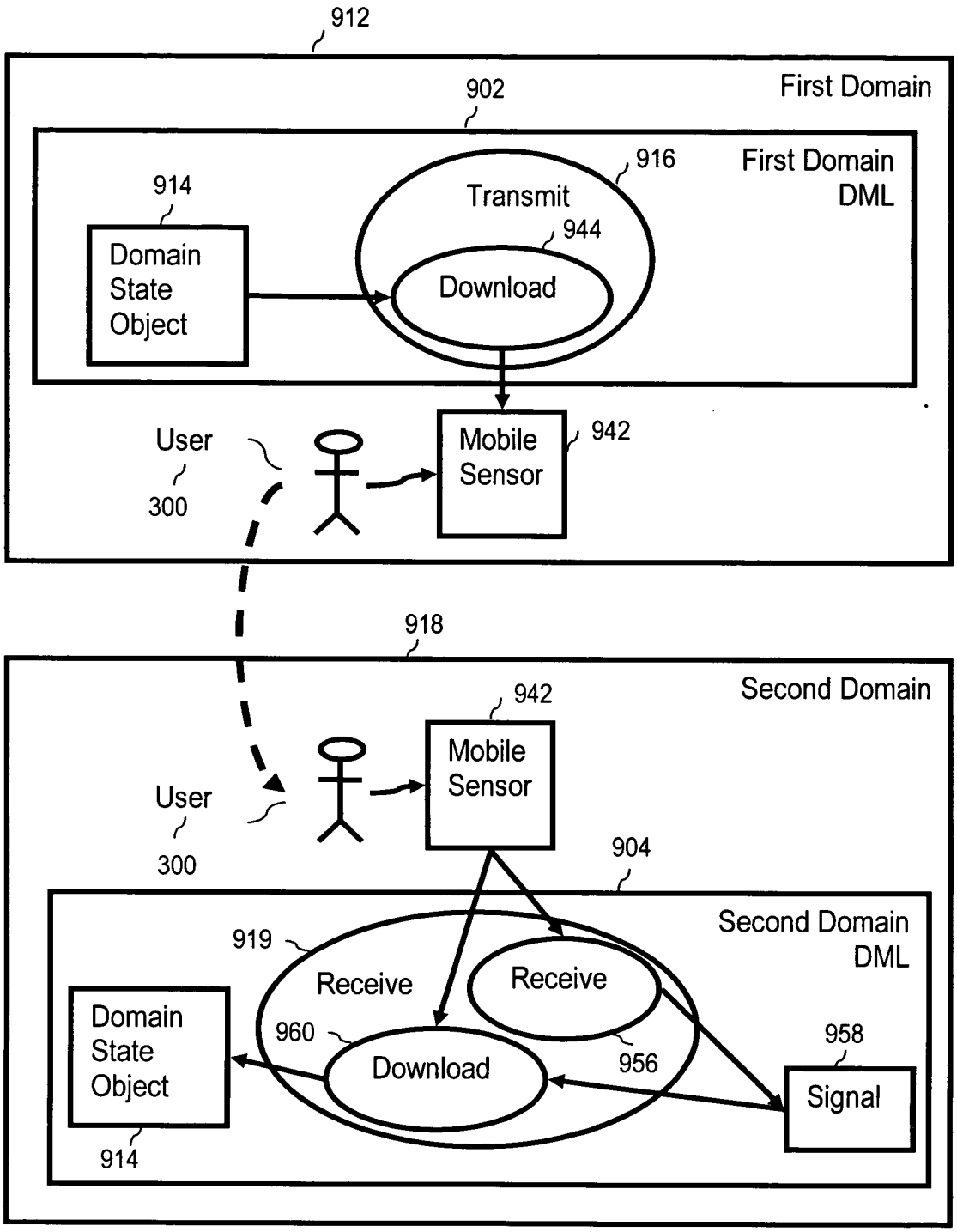
912
First Domain
902
First Domain DML
916
Transmit
944
Download
914
Domain State Object
User
300
Mobile Sensor
942
918
Second Domain
942
Mobile Sensor
User
300
904
Second Domain DML
919
Receive
Receive
960
Download
956
958
Signal
Domain State Object
914

FIG. 15

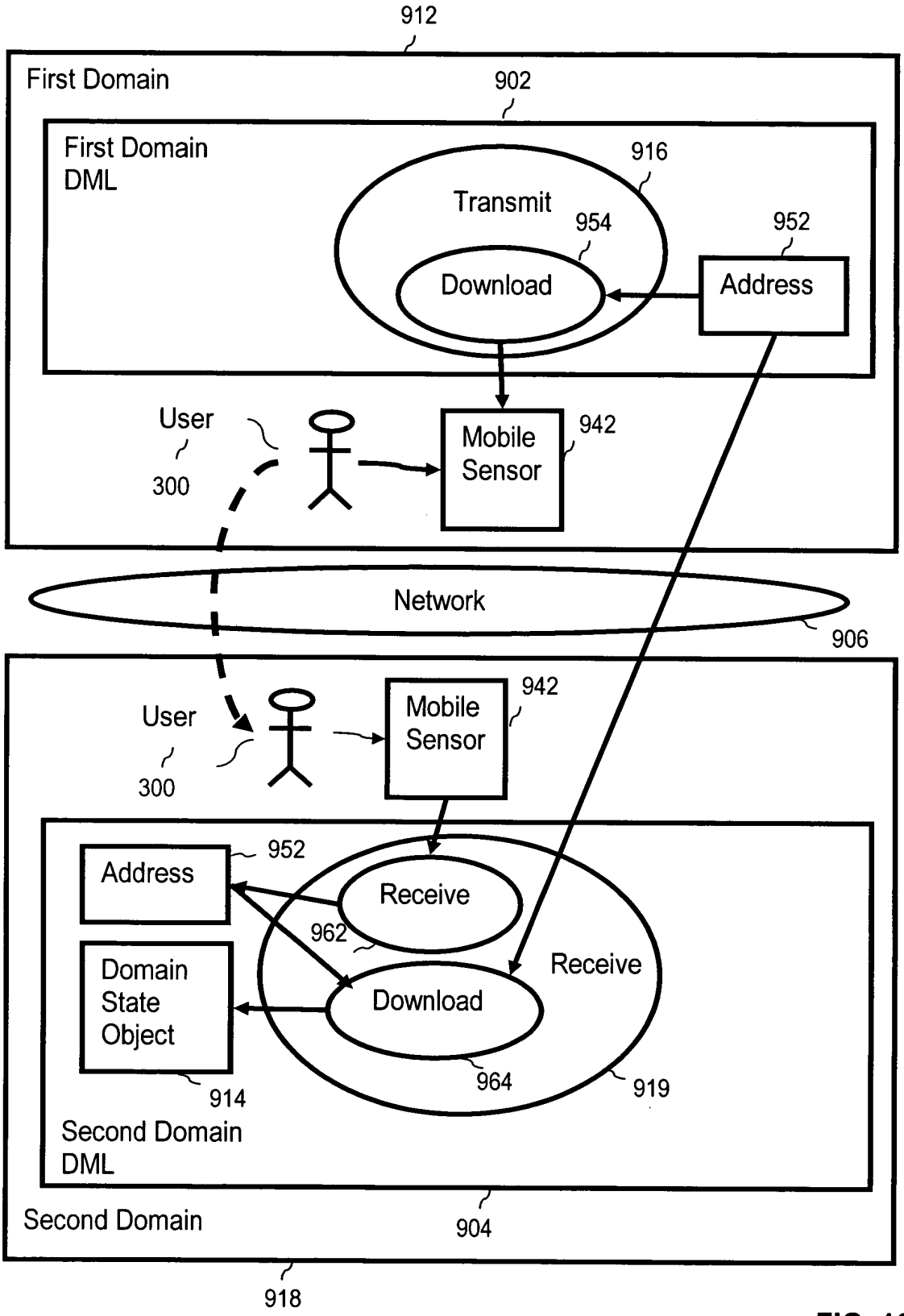
912
First Domain
902
First Domain DML
916
Transmit
954
952
Download
Address
User
300
Mobile Sensor
942
Network
906
User
300
942
Mobile Sensor
952
Address
Receive
962
Receive
Domain State Object
Download
964
919
914
Second Domain DML
Second Domain
904
918

FIG. 16

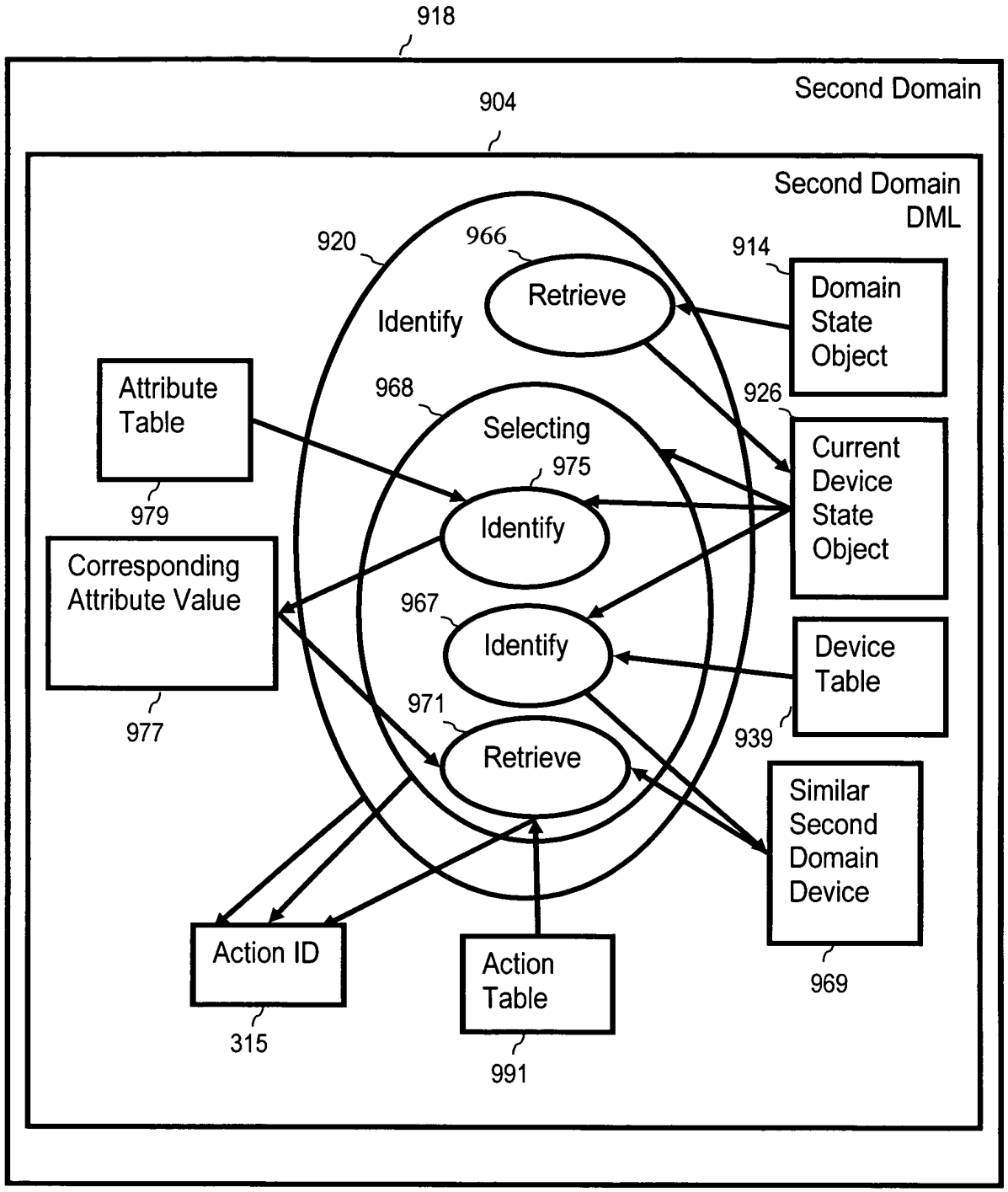
918
Second Domain
904
Second Domain DML
920
966
914
Identify
Retrieve
Domain State Object
Attribute Table
968
926
Selecting
975
Current Device State Object
979
Identify
Corresponding Attribute Value
967
Identify
Device Table
971
977
939
Retrieve
Similar Second Domain Device
Action ID
Action Table
969
315
991

FIG. 17

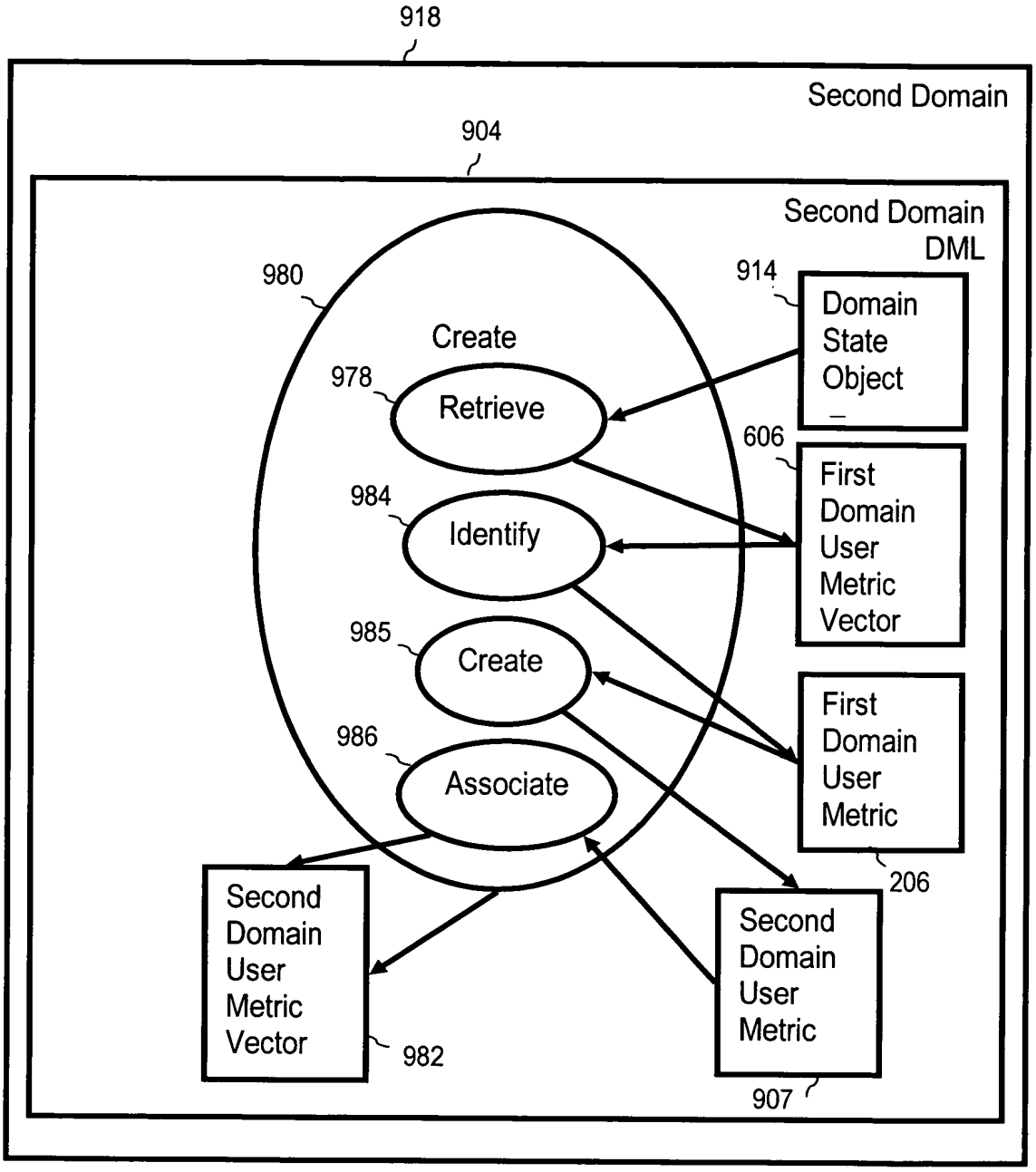
918
Second Domain
904
Second Domain DML
980
914
Domain State Object
Create
978
Retrieve
606
First Domain User Metric Vector
984
Identify
985
Create
First Domain User Metric
986
Associate
206
Second Domain User Metric Vector
982
Second Domain User Metric
907

FIG. 18

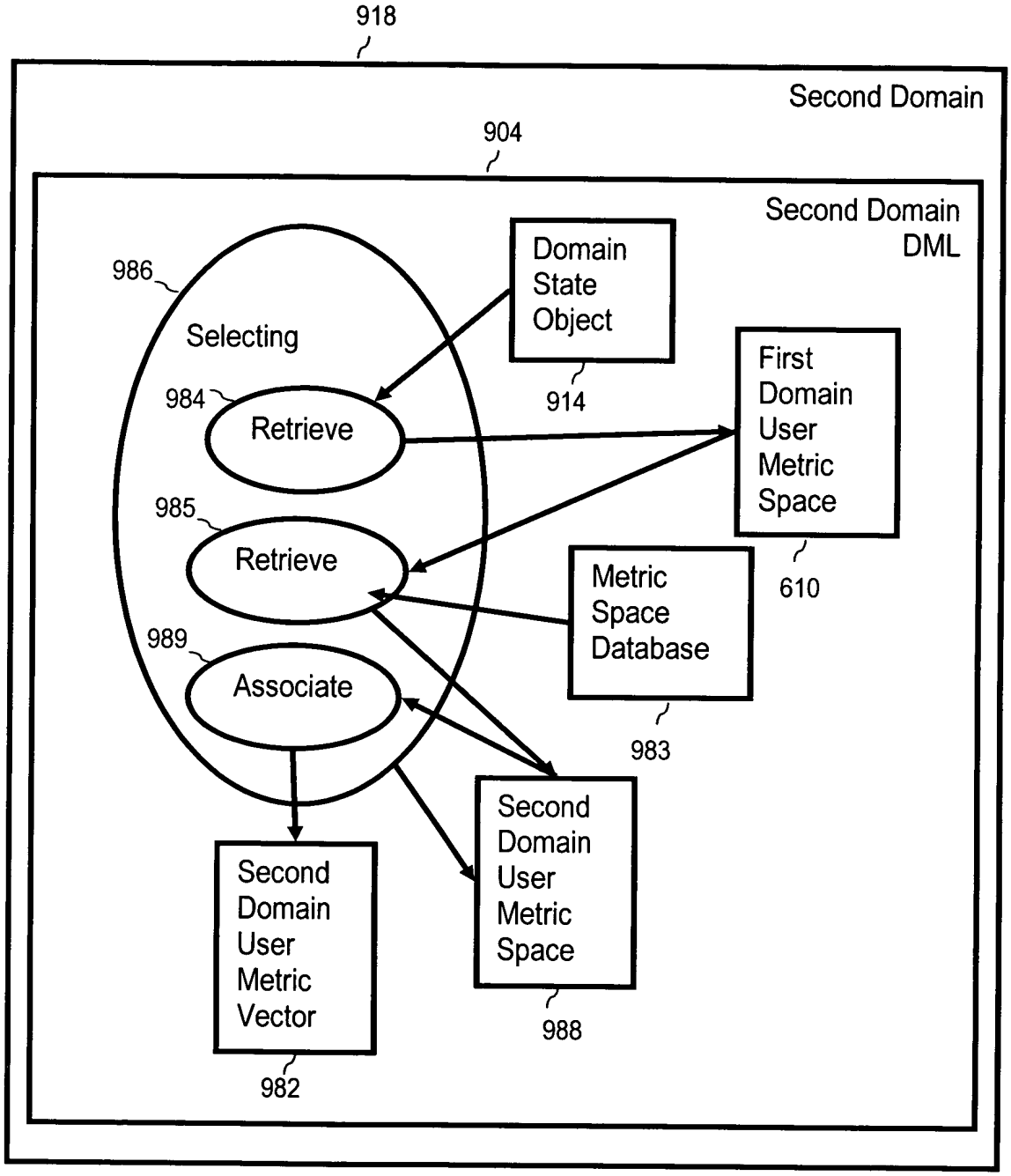
918
Second Domain
904
Second Domain DML
986
Selecting
984
Retrieve
985
Retrieve
989
Associate
Domain State Object
914
First Domain User Metric Space
610
Metric Space Database
983
Second Domain User Metric Space
988
Second Domain User Metric Vector
982

FIG. 19

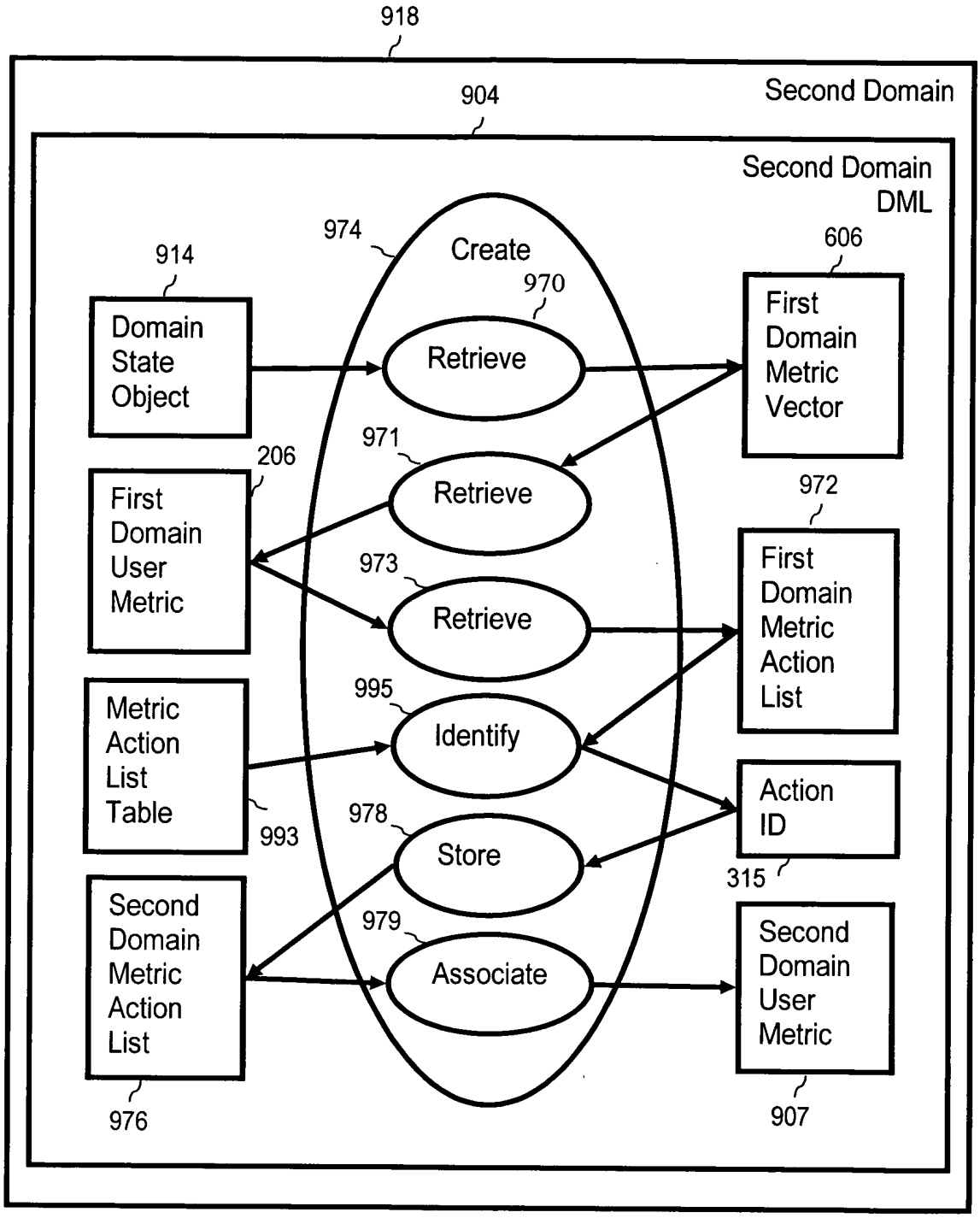
918
Second Domain
904
Second Domain DML
974
Create
914
970
606
Domain State Object
Retrieve
First Domain Metric Vector
971
206
Retrieve
First Domain User Metric
972
973
Retrieve
First Domain Metric Action List
995
Identify
Metric Action List Table
993
978
Action ID
315
Store
Second Domain Metric Action List
979
Associate
Second Domain User Metric
976
907

FIG. 20